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REPORT RESUMES

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ADOLESCENT CHOICE AND DECISION-MAKING--A REVIEW OF
DECISION-MAKING MODELS AND ISSUES IN RELATION TO SOME
DEVELOPMENTAL STAGE TASKS OF ADOLESCENCE.
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CURRENT MODELS OF DECISION-MAKING AND RELATED RESEARCH IN CONNECTION WITH CERTAIN DEVELOPMENTAL TASKS OF ADOLESCENTS WERE REVIEWED. THE DECISION ELEMENTS RECEIVING THEORETICAL ATTENTION WERE (1) DECISION-PROCESS PHASES, (2) DECISION-OUTCOME PROBABILITIES AND STRUCTURAL COMPONENTS, (3) DECISION-PLAN DIMENSIONS, (4) DECISION STRATEGIES, AND (5) DECIDER TRAITS, NEEDS, DRIVES, AND SOCIAL CONTEXT. VOCATIONAL MATURITY AND DEVELOPMENTAL READINESS WERE DISCUSSED IN RELATION TO CAREER DEVELOPMENT, DYNAMIC DECISION PROCESSES, PERSONALITY FACTORS, AND TYPES OF DECIDERS. A REVIEW OF ADOLESCENT COGNITIVE DEVELOPMENT INDICATED THAT IT WAS A CONTINUOUS AND TENTATIVE PROCESS AND FREQUENTLY WAS BASED ON MORE PSYCHOLOGICAL ELEMENTS THAN LOGICAL ONES. IN ADDITION, MANY STAGE TASKS CALLED FOR AND WOULD BE ENHANCED BY A GROWING COMPETENCE IN DECISION-MAKING. (GC)

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STUDIES OF ADOLESCENTS IN THE SECONDARY SCHOOL

Harvard Graduate School of Education

MONOGRAPH NO. [illegible] (September 1966)

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A Review of Decision-Making Models and Issues in Relation to
Some Developmental Stage Tasks of Adolescence

BY: LILLIAN BRANDON DINKLAGE

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CHAPTER I

INTRODUCTION

> Guidance is the systematic, professional process of aiding individuals in making their choices, plans, and adjustments, in undertaking effective self-direction, and in meeting problems of personal living related to education.
>
> (Matthewson, 1949, p. 120)

The above definition of guidance was written by Matthewson seventeen years ago. In the fifty-eight year history[1] of the guidance movement and in the face of our rapidly changing technology, seventeen years is a long time--long enough to make a definition of an emerging profession old-hat and _passe_. Yet, Matthewson's statement remains an adequate definition of the _au courant_ trend in the guidance movement. Perhaps, it is even the source of much of the current emphasis upon choice, planning, purposive action, and decision-making as the major focus of guidance programs. Recent presentations of theory and rationales for guidance practice[2] have placed heavy stress on a decision-making framework, particularly in educational and vocational contexts, as a theoretical basis for school guidance and counseling programs. It is the hope of some of these professionals that such a unifying decision theory would give "specific direction to the organization of guidance and counseling functions or to the systematic evaluation of such functions." (Gelatt, 1962, p. 240). Even when decision-making is not presented as the major, unifying thread for guidance services, leading guidance proponents repeatedly call for it as an area for primary focus among counselor tasks.[1] Education in general, as well as guidance as a specific branch of education, has noted the need for facilitating development in decision processes in the students under its care. The following quotation is taken from Perceiving, Behavior, Becoming, a yearbook publication of the Association for Supervision and Curriculum Development, a department of the NEA. This quote begins to point toward the need for development of a curriculum program in the area of decision-making in order to produce adequate citizens.

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[1] Dating from 1908 when Frank Parsons founded the Vocational Bureau in Boston.

[2] See, for example, Gelatt (1962), Katz (1963 and undated), Super and others (1963), Tiedeman and O'Hara (1963).

> We have based our form of government on the belief that people, utilizing their best potentialities to face up to problems, are completely capable of

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[1] See Gilbert Wrenn in The Counselor in a Changing World, 1962.

> exercising their own government, that is, of making decisions which are in the best interests of the total population. The school then, which takes seriously its commitment to the fullest development of its people, must facilitate this process.
> (Combs, ed., 1962, p. 215)

At the time of this writing, at least four separate programs for developing curriculum instruction on decision-making are being proposed or carried out by guidance practitioners.[1] One of these programs utilizes local norms and feeds back data to the students, another is a computer-based training program, and two utilize a "Life Career Game" approach. It is beyond the scope of this paper to evaluate training programs now in process. Reference is made to them here in order to point out the degree to which concern over decision-making may eventually influence guidance practice.

In consideration of the proposals for decision-making as the basic framework for guidance programs, it is important to note that established guidance and counseling programs are found primarily on the junior high and senior high school levels of educational institutions and occasionally within college settings. This means, then, that the central recipient of guidance services is the adolescent student. Adolescence is here used to describe that stage of life occurring usually between the ages of twelve and twenty when the developing person no longer is considered a child nor is he yet thought to be adult by himself, his peers, or the adults in his world. "Adolescence" includes also the maturational aspects--physical, emotional, and social--of this stage.[1] In proposing decision-making as the basic framework for guidance, guidance practitioners are suggesting a theory and methods or techniques for teaching adolescents how to learn to make decisions which seem valid to them personally and legitimate in a societal context.

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[1] The four development programs known to this author are those of Clarke, et. al. (1965) and Gelatt (1962) at Palo Alto, California; Tiedeman, et. al. (1965) in the Boston area; and similar programs carried on by Mrs. Sarane Boocock and James Coleman in Maryland and R. Garry Shirts in San Diego, California.

This paper reviews theoretical models of decision-making and some of the psychological experiments relevant to it. With the models and research in mind, it then turns to consideration of them in relation to certain stage tasks of adolescence. The general thesis of this paper is that investigations as to how decisions are actually made by adults and adolescents is a necessary prerequisite for positing and instituting programs to teach adolescents how they can or should make decisions. This writer feels that the current understanding of how decisions are made is insufficient to warrant full-fledged institutionalized programs based almost solely upon existing theories of decision-making. Consequently, a strong plea is here entered for further research in this area. This call for research is not a new one. Super (1961) lists research in the process of decision-making as one of the two biggest needs in our field. The other need he cites is studies in vocational development, an area that is certainly related to decision-making.

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[1] Whether "adolescence" as a developmental stage is a cross-cultural phenomenon or a unique product of a highly technological society is an interesting, oft-debated issue. This question will not be treated here, however. The central issues of this particular paper are concerned with decision-making and the American adolescent.

Super's own research, as Sprinthall and Tiedeman (1966) note, "indicates that vocational maturity is a planning orientation within the individual, and is not related to the amount of specific information or content that an individual knows concerning a vocation." (p. 77). They further add that "the provision of vocational information for an individual has little relevance to the emergence of his career pattern." (p. 78). Career pattern or development is very much a product of particular choices and a series of decisions by the individual. Tiedeman and his associates (1965) have nonetheless planned research and a decision-training program centered around the development of an information bank to provide "more and better data about job characteristics and skill requirements as they relate to people." (p. 1).[1]

Similarly, Clarke, Gelatt, and Levine (1965) stress two requirements of good decision-making: adequate information and effective strategies for making choices. After noting the absence of objective criteria for evaluating the "goodness" of strategies, they turn to information as a less complex means of presenting decision-making. On this basis they are conducting decision-training programs using local norms as the chief content for making educational-vocational decisions.

Information is certainly a relevant and important part of any decision; yet it is not all, or the only important decision aspect. Information is part of the content of decisions; and programs for training people in how to make them should be equally, if not to a greater degree, concerned with the process and strategies involved in decision-making. Asking an adolescent to intellectually process information does not guarantee that he will make use of it. And as Anna Freud, we may be "surprised to discover that this fine intellectual performance makes little or no difference to his actual behavior." (1946, p. 175).

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[1] This information gathering, of course, is not the total research proposed in this project but it does seem central to the investigators intent. While Tiedeman and his colleagues do speak of including information on the persons who are using the data system, their explication of this area is not as cogent or powerfully stated as their case for objective data.

In addition to the feeling that our knowledge of decision-making behavior and the current decision models are not fully enough developed to warrant institutionalizing them, this paper contends that some of the developmental attributes and stage tasks of adolescents may make inappropriate a full-scale effort for rational decision training as posited by the theorists. This contention is based upon the observation that the models seem to be basically adult models. The adolescent is not yet mature or adult in the physical, mental, psychological-emotional, or social spheres. To expect him to fully function as an adult in the decision realm may be to expect more than he can or should be able to do. It is further contended that programs for decision training must keep in mind and/or incorporate certain cognitive and emotional aspects of adolescent development.

The second chapter of this paper presents theoretical models of decision-making, especially those deemed most relevant to the guidance area. From a review of the models, we move to a presentation of decision-related research in Chapter III. Chapter IV deals with a consideration of certain adolescent attributes and stage tasks which influence decision-making during that life period. Chapter V, then, is a summary of this writer's conclusions based on the chapters preceding it.

CHAPTER II

MODELS OF DECISION-MAKING

This chapter will discuss various models of decision-making with emphasis upon those models most frequently relied upon as a basis for guidance and counseling.

The recent trend in educational psychology toward decision-making as the basic framework and raison d'être for guidance and counseling programs on the secondary school level has been noted in the introduction to this paper. While the verbalized need for decision-making theory and training programs has been a uniform plea, a review of the theoretical literature readily reveals that no generalized consistent approach to decision-making exists in the social science fields. Rather, decision-making is approached through varying theoretical stances which usually seem to be reflections of the professional orientation of the particular theorist. In this regard, various decision elements receive prime attention in some models while they are diminished or neglected in others. The elements receiving the most theoretical attention can be defined in general terms of 1) the phases of the decision process, 2) outcome probabilities and structural components of decisions, 3) dimensions of decision plans and traits of deciders, 4) decision strategies, 5) inner needs and drives and 6) the societal context of the decider.

Although most theorists and researchers make some considerations of most of the elements of decision-making, they seem to emphasize and contribute primarily to only one or two of the six areas of decision-making just cited. For that reason, and for ease of discussion, the various models to be presented usually will be included in only one of the six categories. The reader will please note that in a paper of this size and scope, an exhaustive presentation of each theorist's model is virtually impossible and the reader is commended to the original works, listed in the bibliography, for an extensive presentation of particular decision models.

Most of the models of decision phases hark back to John Dewey's presentation of the stages of reflective thought. (1933, pp. 106-115). These stages begin with a pre-reflective state of perplexity or doubt which sets, emotionally, the problem to be solved. From this emotional posture the reflective mind leaps toward possible solutions in Phase I: Suggestions. When two or more suggestions produce themselves a choice must be made. The thinker then moves into the second phase, Intellectualization, wherein he converts the initial emotional reaction to the problem at hand into an intellectual understanding of the dimensions of the problem. "Thus the perplexity is more precisely located; just so much ground to cover, so much time to do it in." (p. 109). As I understand Dewey, this reformulation of the problem in essence has the thinker become aware of the facts and information in relation to the problem itself. Having carefully refined and intellectualized this understanding of the problem in Phase Two, the reflective thinker _á la_ Dewey becomes more aware of needed solutions to the problem and is able to form a _Guiding Idea or Hypothesis_ in the third phase of his thinking. In this third stage, with the working hypothesis in mind, the thinker makes more observations and collects more data thus widening his understanding of the problem and the consequences of the working hypothesis. Dewey's fourth phase then is _Reasoning_. The entertained idea is examined by the person and its elements resolved into a consistent whole or else he finds the ideas "unfit or even absurd when their full consequences are traced out." (p. 112). The concluding step of reflective thought then becomes the actual testing out in reality of what has previously existed as an hypothesis or a mental process. The goal of this stage is to verify the applicability and desirability of the hypothesis or to find it unsatisfactory and therefore revise it or abandon it to begin again. Dewey cautions his reader that the five phases are not fixed, that individual phases may be telescoped, expanded, or passed over. He also notes that his presentation of "the five phases of reflection . . . represent only in outline the indispensible traits of reflective thinking." (p. 116).

One may readily note in Dewey's presentation of the stages of reflective thought the elements of the Scientific Method which scientists use to conduct experiments. This method, in brief, involves identifying the problem, gathering facts and data, formulating possible solutions, testing these solutions, reanalyzing the problem where necessary and applying the "correct" solution.

Similar to Dewey's description, Polya denotes in the heuristic process, elements of the scientific method applied to problem-solving thought. In grouping his discussion of the work to be done, Polya distinguishes four areas. "First we have to understand the problem; we have to see clearly what is required. Second, we have to see how the various items are connected, how the unknown is linked to the data, in order to obtain the idea of the solution, to make a plan. Third, we carry out our plan. Fourth, we look back at the completed solution, we review and discuss it." (p. 5). Even though Polya applies this process specifically to mathematical problem-solving, the similarity to Dewey's elaboration is striking.

The scientific method Polya uses in discussing heuristic problem-solving is also apparent in Gagne's (1954) discussion of problem-solving. Gagne writes from a stimulus-response theoretical framework adding concept formation as a mediating factor to his discussion of problem-solving as a reflexive behavior. In his review of the literature on how people think, he lists five phases involved in problem-solving; reception of stimulus, concept formation or invention, determining courses of action, decision-making, and verification. Gagne here uses decision-making in the more restricted sense of choosing between the courses of action available to the person solving the problem.

Brim, Glass, Lavin and Goodman (1962) from a socio-psychological orientation again utilize the basic scientific method as a means of exploring how people make decisions. They list problem identification, information acquisition, solution production, solution evaluation, strategy selection, and actual performance with subsequent learning and revision as the phase sequence in the decision process. (p. 9).

In their paradigmatic consideration of the rational processes involved in career decision-making, Tiedeman and O'Hara (1963) subsume their particular phases or steps in the process under the two broader aspects of "anticipation or preoccupation" and "implementation or adjustment." Tiedeman and O'Hara give a clearer, more detailed and comprehensive statement than most theorists about each of their sub-stages in the decision process. Also they utilize names for these phases which are somewhat out of the mainstream of labels generally applied. However, the explication of the decision process by the authors reveals that they too have been influenced by the scientific method as a model for decision.

In the Tiedeman and O'Hara model, the Aspect of Anticipation or Preoccupation involves, essentially, a series of mental processes prior to any steps that may be taken to make a decision an actual experience. These processes are set in motion by the individual's awareness of a problem, just as Dewey's reflective thinker is first confronted with a prereflective state of doubt or perplexity. Tiedeman and O'Hara's decision-maker ideally enters a phase of Exploration in which he looks at various aspects of himself (e.g., ability, interests, aspiration, personal requirements) in relation to the opportunities open to him, and to society at large. "In short, a person attempts to take the measure of himself in relation to each alternative as he senses it." (p. 41). The first phase, thus involves both anticipation and exploration.

In the second stage, that of Crystallization, the chooser values and orders considerations he deems relevant to the decision at hand. Consequently his thoughts become more settled, the situation better defined, and he becomes more ready to invest himself along some choice-line.

With the situation better defined the decision-maker is now able to make a Choice or Decision (Phase 3). This allows him to begin to focus his expectations and behavior toward what he sees as his goal.

Then, in Phase 4, Clarification occurs in regard to the decision and the person readies himself to make it an actuality by dispelling residual doubts about it and creating an image of himself in his anticipated role.

Having gone through the mental processes necessary in order to make a decision, Tiedeman and O'Hara's thinker is now ready to enter the aspect of Implementation or Adjustment. In this phase what has previously been considered only in thought is now brought into reality and experience begins. In the process of experience the individual is brought into a societal context where he is expected to align himself with a group. In the first step of this aspect and the fifth phase over all, Induction occurs, and "the individual field organized by the person's goal comes into operating interaction with society's related but not identical goal and field." (p. 43). In this stage the individual primarily receives from his new environment and begins to assimilate his personal goals into that of the group which he has just joined.

When the person is well-absorbed into his new societal context he moves out of the receptive stage into an assertive role which Tiedeman and O'Hara call Reformation. In this more assertive role the individual attempts to modify the group's goals to bring them more in line with his personal goals which he has modified in the fifth phase.

Successful completion of the Reformation process makes possible the final phase of Integration wherein both the individual and the group are satisfied under a condition which Tiedeman calls "dynamic equilibrium."

Tiedeman and O'Hara, as Dewey before them, are quick to point out that there is no orderly, fixed and smooth progression from one stage to another and that upsets anywhere along the line can reverse the process and send the decision-maker many phases back, even to the point of beginning anew.

Outcome Probabilities and Structural Components

Another focus of thought and research in decision-making has been upon what may be termed outcome probabilities and structural components of decisions. These models tend to emphasize the structural dimensions of planning *per se* or of decision outcomes.

Just as the scientific method appeared as the core theme in Phase models, the theory of probability seems to be the central concern binding theorists' interests in structural components of decisions. These models tend to focus upon such decision aspects as "risks, choices, gains, goals and pay-off." (Magee, 1964, p. 126). They are concerned with both subjective and objective evaluation of advantages and disadvantages, of desirability and probability outcomes, with interest in expected and ideal outcomes for the decision-maker. Time estimation and confidence in outcomes are also important.

Instead of a phase sequence to present the process of decision-making, these models utilize flow charts, game trees, and decision-event chains to present alternative routes to a final decision based on probabilistic prediction. In this method of viewing decision sequence, coordination becomes another structural component to be incorporated into decision-making where alternative plans are presented simultaneously and attempts to align the various possibilities with other plans of the system are shown. The maximum utility theory in which one attempts usually to minimize the loss or maximize the gain is frequently brought into play in looking at structural components of decision.

Ward Edwards (1954, 1961) has written two very good reviews of theory and research in the area of economic or behavioral decision theory and game theory. He points out that these theories are essentially arm-chair methods (1954, p. 381), and though they are more popular among mathematically oriented theorists, they are less used among experimenters (1961, p. 484). These game theory, probability theory, and economic models of decision and problem solving behavior are highly mathematical and abstract. As a result these models are seldom used in guidance and counseling systems. More often the models are applied in areas such as business, statistics, or economics. For this reason they will not be fully covered here except to mention the one or two professional applications to education.

Bross (1953) discusses what he calls "statistical decision" as "an intellectual mechanism based on the Scientific Method." (p. 17). Within a basic phase framework, he utilizes structural components such as the theory of probability to provide a means of measuring uncertainty. Within statistical decision-makers, "the Prediction System deals with alternative features. The Value System handles the various conflicting purposes. The Criterion integrates the other two components and selects an appropriate action.

It is emphasized that the pragmatic principle is basic for the construction and comparison of Decision-Makers." (p. 32). Measuring uncertainty through probability theory in this model makes possible the comparison of each probability with each possible outcome. The decider can then use this probability to make decisions.

Gelatt (1962) and Clarke, Gelatt, and Levine (1965), following Bross' model, have designed and implemented a guidance facility for public education which unites scientific method models of decision-making with probability theory and the game tree conception of sequences of experiences. They approach their model with the assumption that "the more realistically a student can estimate the probabilities (for him) linking possible actions with possible outcomes, the better able he will be to make a decision to achieve his desired outcomes." (1965, p. 44). This assumption incorporates their belief that persons do not select outcomes which include failure.

Tiedeman and his associates (1965) also seem to be leaning in the direction of a union of decision phases with probability theory. They have recently proposed a computer-based model for training individuals in decision-making. The process would connect information between the machine user or decider and the various aspects (e.g.

education, opportunities, job characteristics) of his alternative choices. As I understand the present plans for this project, the information system would include training the individual to use probability and expectation tables and statements. Also possible would be some feedback to the user of the risk-taking facets of his own personality *via* analysis of his previous decision experiences. In a similar way, Brim, Lavin, Glass and Goodman also utilize structural aspects when they present the basic elements of decision phases as desirability estimation, probability estimation, time estimation.

Katz (1963 and undated) from Educational Testing Service has proposed a model of guidance based upon rational components of decision-making in conjunction with assigning weights and values to various decision components in a probabilistic framework. It is quite similar to Tiedeman's model and for that reason it will not be presented here.

Decision Dimensions

The dimensions of decisions represent another important area of thought and investigation among psychologists and educational psychologists. The phrase "decision dimensions" is here used to identify the body of work which explores aspects of the planner or chooser and the dimensions of the plan itself in decision-making.

One major contribution of this group of investigator-theorists is an attempt to identify and describe so-called "good" decision-making and "mature" deciders. Most of the work in this area has focused on the study of educational and/or career decisions. Super and his colleagues at Columbia seem to be the foremost contributors and pace setters for investigating these aspects of decision-making. Super, Overstreet, et. al. (1960, 1963) have identified at least twenty-seven factors they believe relevant to vocational maturity. Vocational maturity is their term for a student's ability to make good occupational decisions and respond responsibly to vocational challenges. Among these factors, eight deal with the student's awareness of and concern with choice, three with his acceptance of the responsibility for making particular choices and plans for his own life, four with the specificity of information he uses *in re* job possibilities, seven with the specificity of his planning and five with the independence of his work experience, e.g. extent of paid experience and responsibility on the job (1960).

Crites (1965), continuing work he began with Super, identifies five areas of attitudes that he finds relevant in vocational development. The areas Crites cites as relevant are the student's involvement in the choice process, his orientation toward work, the independence he exercises in decision-making, his preference for vocational choice factors when choice is to be based on one particular factor, and his conceptions of the choice process.

In other work on vocational development, Gribbons and Lohnes (1964, 1965) have used eight _a priori_ factors and seventeen independent dimensions in analysis of Readiness for Vocational Planning. Their eight _a priori_ factors are the students' awareness of relevant factors in 1) curriculum choice and 2) occupational choice, 3) the student's ability to verbalize the relationship of his strong and weak points in regard to his educational and occupational choices, 4) the accuracy of this self-appraisal when it is compared with the student's records and test results, and 5) the quality of the evidence cited by the student for his self-ratings, the student's awareness of the relationship of his 6) interests and 7) values to occupational decisions and 8) his willingness to be independent in and take personal responsibility for his choices. The seventeen independent variables include such measures as sex, IQ, curriculum level, socio-economic status, and so on. The first results of their findings using these theoretical constructs of vocational maturity are presented in Chapter III of this paper.

Miller, Galanter, and Pribram (1960, pp. 118-121) in thinking about plans and planners offer a partial listing of elements that may be relevant in considering differences in decision-making. Noting that research indicates men usually develop analytic abstract plans for solving problems while women tend to begin by seeking help, they list the source of the plan as an important variable. Span, the difference between planning only for the immediate present or incorporation of future expectations into the decision, and detail, whether the plan is a general strategy or elaborately laid out tactics, are also considered important in differentiating decisions. The speed of working out the plan, the flexibility in the order of execution of plans, and the coordination or compartmentalization of all plans are cited as relevant. Miller, Galanter, and Pribram also mention relevant factors in regard to the decision maker himself: the kind of memory involved in retrieval of the plan, the openness with which he announces and executes his plan and where his stop-orders lie that cause him to persevere or give up. These relevant differences listed by Miller, Galanter, and Pribram are incorporated into a generalized stimulus-response reflexive arc which they call TOTE. TOTE, which stands for Test-Operate--Test-Exit, represents the feedback loop the decision-maker follows in evaluating components of his decision-in-progress.

Another partial listing of planner and plan dimensions has been made by Hilton (1962). He lists twenty-two plan dimensions as relevant in understanding decision-making.[1] These dimensions which can vary independently from each other were derived from the researcher's attempt to design reliable scoring categories of decision areas.

It should be noted that some of the models of decision-making described in the earlier portions of this chapter include the attribute-matching model. In general, the trait-and-factor theory of occupational choice provides the basis for an analysis of how individual differences may influence the process of job and occupational choice. The attribute matching or trait-and-factor models attempt to incorporate a comprehensive view of man and decision-making. Unfortunately, the trait-and-factor model when translated into the practice of vocational guidance becomes little more than an attempt to "match" man and job. The assumption is that the person making a choice under the guidance of a counselor will more or less catalog his personal qualities and requirements. Then the person and counselor will try to match these against job characteristics and requirements in each of some set of occupations. The process ideally will eventuate in the selection of a job or occupation which seems to best match the person's own qualities and therefore offer promise of successful adjustment for him in his job role. Out of these early models and expectations of decision-making arose such tests as the Strong Vocational Interest Blank and the Kuder tests which were designed to help the person making job choices match his attributes, interests, and so on against those of persons already in various occupations.

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[1] These twenty-two dimensions are: *decisiveness* from passivity to deliberate strength, *specificity* of occupational setting and type and focus of work, *instrumentality* from general to specific means of gaining goal, *immediate objective*, number of *hurdles or barriers* seen, *confidence* in outcomes, attractiveness of *expected* and "*ideal*" outcomes, *length* into the future, *expectations of growth* in status, *alternativeness* of immediate expectations, *ego involvement* and responsibility, perceived *advantages* and *disadvantages*, *maturity* of the plan or the length of time it has been held, extent of *indecision* in regard to precise nature of his future plans, *heterogeniety* of plans, the *social support* of significant others for his plans, *tentativeness*, *definition* or how detailed the plans are, *uniqueness* of plan in yielding satisfaction, *study* and *self-analysis* involved, and *continuity* with previous plans. (Hilton, 1962, pp. 209-210).

Decision Strategies

Another area of decision-making which appears to have been looked at less often but which seems to offer a wealth of possibilities for understanding how people make decisions is the type of strategy the decider evokes and utilizes in arriving at his plan for action.

Festinger (1957) in presenting his theory of cognitive dissonance notes that the existence of dissonance ("nonfitting" relations among cognitive elements) creates pressures to avoid increases in and to reduce the pressure of existing dissonance. In effect the individual will seek to reduce incongruity and move toward an internal balance or "inner state" equilibrium. The strength of the pressure to reduce dissonance is seen by Festinger as a function of the magnitude of the existing dissonance. In discussing considerations of his theory he identifies three major means of handling or reducing dissonance: changing one or more of the elements involved, adding new cognitive elements which are consonant, and decreasing the importance of the dissonant elements involved. He also adds that attempts to avoid dissonance altogether occur either through a reluctance to commit oneself or when this cannot be postponed a cognitive negation of the action taken, i.e., the decider announces his conviction that he did the wrong thing. In summarizing his considerations, Festinger lists twelve strategies which might apply to actual situations.

> 1. Postdecision dissonance may be reduced by increasing the attractiveness of the chosen alternative, decreasing the attractiveness of the unchosen alternatives, or both.
> 2. Postdecision dissonance may be reduced by perceiving some characteristics of the chosen and unchosen alternatives as identical.
> 3. Postdecision dissonance may be reduced by decreasing the importance of various aspects of the decision.
> 4. If forced compliance has been elicited, the dissonance may be reduced by changing private opinion to bring it into line with the overt behavior or by magnifying the amount of reward or punishment involved.

> 5. If forced compliance fails to be elicited, dissonance may be reduced by intensifying the original private opinion or by minimizing the reward or punishment involved.
> 6. The presence of dissonance leads to seeking new information which will provide cognition consonant with existing cognitive elements and to avoiding those sources of new information which would be likely to increase existing dissonance.
> 7. When some of the cognitive elements involved in a dissonance are cognitions about one's own behavior, the dissonance can be reduced by changing the behavior, thus directly changing the cognitive elements.
> 8. Forced or accidental exposure to new information which tends to increase dissonance will frequently result in misinterpretation and misperception of the new information by the person thus exposed in an effort to avoid a dissonance increase.
> 9. Dissonance introduced by disagreement expressed by other persons may be reduced by changing one's own opinions, by influencing the others to change their opinions, and by rejecting those who disagree.
> 10. The existence of dissonance will lead to seeking out others who already agree with a cognition that one wants to establish or maintain and will also lead to the initiation of communication and influence processes in an effort to obtain more social support.
> 11. Influence exerted on a person will be more effective in producing opinion change to the extent that the indicated change of opinions reduces dissonance for that person.
> 12. In situations where many persons who associate with one another all suffer from the identical dissonance, dissonance reduction by obtaining social support is very easy to accomplish. (pp. 264-265).

Festinger's contribution to an understanding of the decision process seems to reside not so much in his theory *per se* but in the fact that he points directly toward emotional components of decision-making and emphasizes the personality's need to deal with such elements. Festinger himself deals more with the emotional reactions following the decision act but his work has inspired others to transpose focus from post-decisional to pre-decisional strategies and emotional components.

Hilton (1962, 1963) adapts Festinger's model and incorporates it into a complex information processing model. Hilton seeks explanation for the major motivation of career decision-making. He asserts that the attempt on the individual's part to reduce the dissonance among his beliefs about himself and his environment becomes a major aspect of motivation in career decision-making.

In his model, Hilton (1963) identifies two broad categories, decision-avoiding strategies and decision-making strategies which occur in a person who is experiencing some difficulty in effecting dissonance reduction. One manner he indicates, of avoiding decisions is the individual's "refusal to consider alternatives." This blindness to what otherwise might be an attractive alternative can occur on either a conscious or unconscious level in an attempt to avoid a decision dilemma. Another means of avoiding making a decision is the "sequential strategy" which allows the person to bypass choice between two alternatives, first by accomplishing one and then the other. A third method is the "omnibus strategy" where the person avoids choice by simultaneously accomplishing alternatives. An example of an omnibus strategy might be a person who uses his free evening time to pursue as an avocation what to him was an equally attractive vocational choice. The final avoidance strategy Hilton mentions is "postponement" of a decision until the decider has more training, such as an advanced degree, more information, or until he sees if the conditions may change, as in the case of a student who postpones application for a doctoral degree until his grades are in from the master's level.

In presenting decision-making strategies, Hilton first lists what he calls "alteration of planning horizon." Utilizing this approach the decision-maker may lengthen or shorten his perspective on any given decision to be made. That is, he may expand his consideration of the issue at hand to include long-range, depth, and breadth effects of any given alternative or he may narrow and shorten the scope of his considerations in what Hilton calls the "crossing-bridges-when-one-comes-to-them" approach. Closely related to alteration of planning horizon but separate from it in Hilton's schema is the "alteration of requirements." This involves the creation of requirements in order to eliminate various possible alternatives and thereby facilitate the choice process. Similar to this is the "selection by elimination" method in which the individual's choice is based not on the attractiveness of alternatives but by dropping alternatives which are the most unattractive until there is only one left.

"Reformulation of alternatives" is the last strategy cited by Hilton and can facilitate decision-making in three different ways. The first means, "the umbrella approach" lets the decider broaden one alternative so that it includes the major alternatives in which he is interested. In this approach the individual unifies the alternatives into one as opposed to pursuing them separately but simultaneously as in the omnibus approach. "Choosing an uncommitting alternative" (which could also be listed as "postponement") occurs when the individual selects expected short-term work (such as graduate school) rather than make a long-term commitment. Finally, the individual can adopt "a broad, vague plan" when dissonance occurs between a highly specific alternative he desires and the reality of his situation.

Field (1964) in his doctoral dissertation found five strategy approaches to decision-making of an educational-vocational nature exhibited by his adolescent subjects. His groupings indicate that some adolescents select rather specific educational and occupational goals early in life and make their decisions in relation to this early established goal. Another strategy group were those who express a desire for a vocation which is less specific than the first group's yet still requires positive preparation for eventual career entry. They then make their decisions in order to "keep the door open" for growth and development toward a goal which they are not yet certain of. Less planful than the second group are those who evoke the strategy type of "acting for the moment" but with a vague goal in mind. His fourth category dealt with those who handle decisions by "triggering" which overrides any goal or plan they may have in mind. In this group, decisions were usually based on only one factor, that factor frequently being the avoidance of something the person deemed unpleasant, such as manual labor. Field's final category grouped those with extreme cases of empty or hollow goals or plans who essentially were making no decisions.

Mention should be made here of two other models of decision-making which are important even though less well developed than the models already described. The first model has been derived from personality theory. Dynamic personality theory holds that persons make decisions based on their needs and drives. Within this frame, individuals with varying degrees of awareness (though most frequently assumed to be unconscious) in regard to their behavior, move toward decisions and goals which will gratify some inner need, reduce some inner tension, or fulfill some longing. In this model, when decision-making is conscious, the decider strives to know and evaluate the nature of his personal needs and chooses an alternative that will best gratify them. The limitation of the needs-drives model lies in its stress on the deterministic nature of past experiences in influencing present and future decisions. This model does not take into account the rationality man can achieve in determining his own course in spite of pressures from previous development. Nor does it take full cognizance of the major force of autonomy inherent in the individual which Allport (1955) notes so succinctly and well in his book, Becoming.

Sociology takes a different stance on decision-making. Sociologists stress the importance of the social environment in which an individual develops and emphasize the limits imposed on the individual by society. In this model, a person's range of choice is fairly well determined by the amount of mobility governed by the socio-economic level of his environment. The big questions facing the decision-maker as seen by sociologists is whether or not he can meet the societal demands (economic and otherwise) for making the decision. Given the alternatives that are open to him or that he is willing to sacrifice for, he selects and follows the path which opens from that decision in the sociological approach.

In reviewing the approaches to decision-making this writer notices that usually the model presented by an individual or group is graven in the theorists' own images, or at least within their own biases. Men immersed in the rational, cognitive aspects of human understanding, seem to say implicitly that Man is, or at least he should be, rational. Consequently some theorists construct a logical series of cognitive steps through which a person should proceed in a more-or-less set fashion or order to arrive at a sound and "good" decision. In similar fashion, mathematicians, statisticians, and the new breed of cyberneticists insist that with so many alternatives and so much information to be processed Man should submit himself to machine-like predictions of probabilities using mathematical-like formulae in order to achieve a decision which will yield maximum utility. Psychometrists and many guidance practitioners bred in the tradition of helping Man know and understand his various traits construct attribute-matching models for making decisions. Dynamic psychologists pose a theory of decision-making based on a psychological theory of needs and inner tensions; sociologists, on a theory of societal structure and social order. And in between, on the misty flats, a few voices are heard who have examined through what might be called "naturalistic" observation the strategies their subjects use in making decisions and then entered these strategies as central items in their models of decision-making.

All of these approaches to decision-making contribute to our understanding of human behavior especially as it relates to the choice process. The question, of course, is complex. What does really go on or should go on inside a man as he is confronted with a situation in which he is to exercise his freedom and make a choice, a decision affecting both himself, and usually, society? The difficulty with the present models described in this paper is that, like Pygmalion, the theorists occasionally become enamoured of their creations, desiring to give life and make absolute the means of stating how Man should behave. In a manner similar to a Kantian prescription, the theory does more than describe and explain, it exhorts. Rather than using theory as a means to explain how Man does or might behave, these models tend to proscribe. In the enshrinement of their particular models theorists begin to overlook the Total Man, writing as if He consisted only of the few aspects which their model covers. For example, the rationalists tend to ignore the emotional components of a man confronting a decision and a commitment. At best, they work emotions into their schema by declaring that the decider perhaps should pull out his feelings about the matter, look at them as he would look at factual non-personal data, then tuck the emotions back inside himself again. How little, it seems, do "super-rationalists" understand the nature of human feelings and human perceptions or apperceptions of feeling? The statisticians and mathematicians, also tend to ignore emotional components of human decisions in their models, evidently expecting a man to behave as a machine behaves in processing information or as an abstract formula. The attribute-matching models tend to ignore the difficulty in objectively assigning weights and values to the various subjective components of choice. Other models such as rational and utility theories may spend so much time on the components and relative weightings in choice that they may miss the elusive "whole" of the man by stressing only the parts. The dynamic psychologists and sociologists, on the other hand, may pay so little attention to a man's capacity for reason, that man may be viewed as virtually devoid of self direction. Man's ability to alter his emotions and environmental aspects through the use of his cognitive powers and planning should not be either overlooked nor denigrated in the process of decision-making.

In short, all models contribute something to our understanding of human behavior but no one model appears as sufficiently comprehensive of the decision-making process. As Guilford (1956, p. 284) before me, this writer feels that we should stop looking "for any one function or [illegible] process that is the sine qua non of all problem-solving." What would seem to be more helpful in adding to our body of knowledge concerning decision-making and problem-solving, at this point, is less arm-chair philosophy as to how decisions should be made and more empirical investigations. The balance between theorizing and data gathering has always been a cause "celebre," especially in educational psychology. Yet it does seem essential, at the present time, that the need for data is unavoidable. We need more actual data as to just how people of various ages and social backgrounds do, in fact, make decisions. This would provide a basis to facilitate decision-making for various types of individuals. One might approach this task, most appropriately with as few as possible a priori notions about individual decision-making, and an openness to seeing unique kinds of intra- and interpersonal components going on in those confronted by decision situations. There are, of course, certain difficulties inherent to this approach. A completely empirical "dust-bowl" could become just another arena in which the important and the unimportant elements may be inextricably fused. A balance is obviously necessary. It does seem, however, on the basis of the selective review in this chapter that the present theories are severely limited in their capacity to offer a cogent frame of reference for guidance work with adolescents in the area of decision-making. Until more is learned about how adolescents and adults actually do make decisions, theoretical ideas of how they should decide have little applicability. Without theoretical propositions derived from or altered on the basis of how people actually function, guidance programs remain little more than medicine men operating on untested assumptions toward ill-defined goals, with no stated rationale for the functions they are performing. On this basis, the risk of a "dust-bowl" seems worth the attempt to empirically investigate adolescent decision-making and perhaps produce material and knowledge which is directly relevant to decision-making among adolescents. Such knowledge could offer some basis for guidance programs in secondary schools and facilitate the revision of existing theories as well as the teaching and learning of valid routes to "good" decision-making for adolescents. As Gordon Allport reminds us (Carle, Kehas, and Mosher, 1962, p. 381), "Our first duty is . . . to redouble our efforts to find a more adequate image of man to guide us in fashioning a more suitable science of personality."

CHAPTER III

RESEARCH IN DECISION AREAS

In this section, some of the more recent research studies on aspects of decision-making will be presented, particularly those considered most relevant to the area of guidance.

As decision-making has become a major topic of intellectual and professional concern for psychologists and economists, the volume of research has increased. This increase shows no sign of decline. For example, there appear to be many projects, new and continuing, in progress at this writing for which results are incomplete or not yet published.

The research literature that is available indicates that most of the completed research has been carried on by statisticians, economists, and mathematicians, testing game theory, probability, and maximum utility theory constructs. These research projects generally use hypothetical situations and games usually quite removed from the subject's own life space. For example, these projects frequently rely on risk-taking sets, when the subject is essentially playing with the experimenter's money which he can "win" rather than risking his own property or life situation. The Becker and Siegel study (1958) is one exception to the usual hypothetical framework of these probability investigations. Becker and Siegel used actual mid-term course grades in a psychology class as rewards, in testing level of aspiration in a decision theory context. As has been previously noted, the economists' models of decision-making have been little applied to guidance systems in secondary schools or colleges. For that reason and because the focus of this paper is on dynamic decision-making, the voluminous research projects in the game theory area will not be reported here. Ward Edwards (1954, 1961) has written two excellent reviews of this research literature in order to bring the economist's work to the attention of psychologists. Gagne (1959) has also reviewed some of these projects in his paper on "Problem-Solving and Thinking."

Within dynamic decision research, investigations seem to have focussed on four major areas: vocational maturity or developmental readiness for making career decisions, personality factors involved in decision-making, dynamic decision processes, and types of deciders.

Super and his colleagues at Columbia have led the field in research on developmental trends in vocational maturity. Using Ginzberg's vocational development theory and three concepts from developmental psychology,[1] Super constructed multi-dimensional indices of vocational maturity. Basically, Super's longitudinal study of 105 boys who were in the ninth grade of a high school in Middletown, New York, during 1951-1952, is a normative study designed to evaluate patterns of vocational behavior in a peer group. Super defines vocational behavior as "any interaction between the individual and his environment which is related to work." (1960, p. 2). To evaluate and normalize various aspects of vocational behavior, Super and his colleagues designed a thorough and somewhat complex manual for scoring the interviews, psychological tests, and data accumulated on their subjects. They started with a field of six dimensions[2] and a total of nineteen indices under these dimensions. Their evaluation yielded two dimensions and six indices with construct validity for indicating vocational maturity in their subjects. Dimension A of the final results was Orientation to Choice Tasks and embraced the indices of concern with choice, acceptance of responsibility, specificity of information, specificity of planning, and extent of planning. Dimension B had only one index: Use of Resources.

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[1] The three principles Super uses are: (1) Development proceeds from random, undifferentiated activity to goal-directed, specific activity. (2) Development is in the direction of increasing awareness and orientation to reality. (3) Development is from dependence to increasing independence. (See Super and Overstreet, 1960, pp. 31-32).

[2] The six dimensions are: Orientation to Vocational Choice, Information and Planning about the Preferred Occupation, Consistency of Vocational Preference, Crystallization of Traits, Independence of Work Experience, and Wisdom of Vocational Preference (Super and Overstreet, pp. 33-34).

Crites (1965), following Super with whom he studied at Columbia, has developed an attitude test to which he plans to add a competence test as part of a comprehensive Vocational Development Inventory. His sixty item true-false attitude test is divided into two scales, fifty items on the vocational maturity scale (VM) measuring five dimensions of vocational development;[1] and ten on a deviation (D) scale on which he hopes to measure vocational maladjustment. Using over 3,000 subjects, male and female, in grades five through twelve, his first results indicate that verbal vocational behaviors are monotonically related to both age and grade, with correlations being slightly higher for grade. He identified stages between grades six and seven and grades nine and ten, using subjects from a 6-3-3 school system.

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[1] Crites' dimensions include Involvement in the Choice Process, Orientation toward Work, Independence in Decision-Making, Preference for Vocational Choice Factors (where choice is based on one particular factor) and Conceptions of the Choice Process.

He also noted a trend in item response from "true" in the early years to "false" among his older subjects. Crites further found that there were very few socio-economic and sex differences on items which validly differentiated between grades. Crites' results tend to support Super's developmental constructs and indicate relatively little effect due to sex or socio-economic status in the vocational planning and decision-making of adolescents.

Along these same lines, Gribbons and Lohnes (1964, 1965) are working on a ten year study of vocational development in adolescents, using a multi-dimensional personal interview. Gribbons began with eight a priori factors,[1] and seventeen independent dimensions such as sex, IQ, curriculum level, SES, and so on. The scale derived from analyses of the data was denoted as Readiness for Vocational Planning (RVP). Since the scale is not fully developed, the researchers indicate that the meaning and use of RVP is not yet clear. Results after the first two or three years of Gribbons and Lohnes study tend to indicate that two factors may be most relevant. The subject's ability to accurately evaluate his scholastic ability and to present the rationale for these estimates seems related to higher RVP as measured by the instrument. These same two factors also distinguish between students in a college prep curriculum and other curricula. Since college prep students tend to be the brighter students with the highest ability in any school system, this writer wonders if Gribbons and Lohnes findings are more a measure of intellectual potency rather than vocational maturity _per se_.

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[1] Gribbons and Lohnes eight a priori factors are awareness of relevant factors in (1) curriculum choice and (2) occupational choice, (3) verbalized strengths and weaknesses, (4) accuracy of self-appraisal, (5) evidence for self-ratings, awareness of (6) interests and (7) values to occupational choice and (8) independence of choice. (1964, p. 14).

Gribbons and Lohnes make two other important observations in their reports. Their sample subjects had what the investigators evaluated as unrealistically high goals and aspirations in terms of their educational and occupational objectives. The researchers credited these unusually high expectations to their sample's developmental stage (Exploratory: Tentative, using the Super-Ginzberg model) instead of to poor vocational planning. Contrary to Crites' findings of little differences between the sexes, Gribbons and Lohnes' RVP tended to discriminate between sexes; but their sample was too small for the discrimination to be significant. They suggest that in a larger sample a separate analysis for males and females should be required since the RVP probably differentiates between the two.

In other studies of vocational maturity, Block and

Petersen (1955) describe their subjects on the basis of various psychological tests and reach the expected, if not trite, conclusion that mature subjects make mature decisions.

Walter Reichman (1966) in a study of vocational maturity of 103 ninth and 103 twelfth grade boys found two factors with construct validity. At both grade levels, the factor, Occupational Information: Training and Educational Requirements served to identify vocationally mature behavior. Another factor, Consideration of Occupational Alternatives and Contingencies, was a meaningful measure of vocational maturity at the twelfth grade level only. Reichman also found a usual relationship in studies of this type: statistically significant relationships exist between the subject's IQ, academic achievement and the socio-economic status of his family, and his vocational maturity. Another interesting finding was that the boys' vocational aspirations were negatively correlated with holding an after-school job. This negative correlation may be a result of the fact that students from higher SES groups tend to have higher educational and vocational aspirations and less need for after-school employment than students from lower SES status. This finding is interesting however, because some theorists and researchers (see for example Super's original six dimensions on page 39) have assumed that independent work experience would affect a student's vocational maturity, educational and vocational aspiration, and choice selection in a positive direction.

Robert Herriott (1961) has conducted an interesting investigation of the educational aspirations of secondary school students with important implications for decision-making theory in regard to this age group. Based on Merton and Gross' assertion that self-assessment and expectation influence level of aspiration in many different social contexts, Herriott constructed a thirty minute pre-coded questionnaire. His questionnaire asked the subject to assess himself in seven different motivation, ability and performance areas (intellectual motivation, ability, and performance; economic motivation and performance; and social performance both in and out of school). Then the questionnaire gave eight plans for education, ranging from dropping out of high school through graduate or professional study, and asked the student to select the plan he would choose and also the plan that significant others in his life would select for him. In his findings, Herriott indicates that only intellectual performance and economic performance, of the original seven factors, have an independent significant relationship with educational aspiration. Of the list of eleven possible significant others, Father, Mother, older sibling or relative, peer friend, and senior high school counselor, all had significant relationships to the educational aspirations of the subjects. In summing up his results, Herriott points toward these findings' implications for vocational development theory.

> Super has defined the mechanism of occupational choice as essentially "developing a picture of the kind of person one is and of trying to make that concept a reality." An individual's picture of himself does appear to play a part in his vocational development as studies here in the educational aspirations of adolescents, but of perhaps more importance for the analysis of vocational development is the finding that in "trying to make that concept a reality" the adolescent appears to rely heavily on his perceptions of the expectations which others hold for his development. Theories of vocational development have tended to give too little explicit consideration to the sociological proposition that adolescent behavior is in part "shaped" by the expectations of significant others. (Herriott, 1961, p. 16).

Cooley (1962) has found that different personality traits at different developmental stages can be used to efficiently predict his male subjects' later science or non-science career choice. His classification system is derived from Ginzberg's theory of Interests, Capacity, Values as vocational development stages. At the fifth grade level, Interest in "science-technology" or "not science-technology" was the only stable distinction between the subject's later career choices. In junior high school, a student's Capacity or Ability was the most efficient predictor for choices between college science, college non-science, technological school, or non-science-technological. However, at this level the subjects were already in college bound and non-college bound groupings and this fact may be reflected in the ability predictors at this stage. By late high school or college, Values as measured by the Allport-Vernon-Lindsay test become more important and the most parsimonious predictor of career choice. It should be noted that the vocational choices of Cooley's subjects were only grossly catalogued into science, technological, and non-science groupings. Whether Interests, Capacity, and Values would make any finer distinctions in predicting vocational decisions is yet to be studied.

Tyler and Sundberg (undated and 1964), in an intensive cross-cultural study of factors affecting American and Dutch adolescents' choices gleaned some interesting results. Their limited number of ninth grade subjects (48 from the Netherlands, 96 from Oregon schools) were matched for sex, and three socio-economic classes: Upper Middle, Lower Middle, and Working Class. Selected passages from their "Conclusions and Implications" section relevant to the present discussion is reproduced here.

> 1. A generalization that would account for most if not all of the specific differences between Dutch and American adolescents is that the Dutch subjects are more aware of their total society made up of both adults and children, whereas the American adolescents are more aware of their special teen-age society. . . . American adolescents tend to be more similar to one another than Dutch adolescents do. Probably the peer

> group can impose its standards even more effectively than adult society can. In terms of the concepts we started with, American adolescents attempt to structure their possibility worlds in the same way their friends and classmates do. Dutch adolescents use the limits imposed by social institutions to provide basic structure.
> 2. The McQuilty linkage analysis procedure while it revealed some interesting aspects of the data from the Choice Pattern Test, did not produce the clear cut types of "choosers" we hoped to identify.
> 3. . . . about three-fourths [of the subjects] in all, gave evidence in their groupings of Choice Pattern items of "primitive," "concrete," or "non-analytic" concepts. Many of these same subjects showed superior development with regard to the general kind of thinking Witkin calls "psychological differentiation." What this may mean is that attitudes toward many occupations and activities, formed at an early stage of development, persist in childish or immature forms unless experience requires boys and girls to rethink them. . . . This whole question of the formal structure of occupational concepts deserves further study.
> 4. Evidence was found for three kinds of organizing structure employed by individuals to enable them to deal with occupations and free time activities. These are choice strategies, values, and interests. Some subjects tend to use one of these kinds of structure predominantly whereas others used combinations of them. Classifying individuals on the basis of such differences in the way they organize the material appears now to hold more promise for future research than classifying them on the basis of a statistical linkage analysis.
> 5. Factor analysis revealed a number of meaningful dimensions along which value items . . . can be ranged. . . . (Tyler and Sundberg, undated, pp. 12-15).

Autonomy and independence are other personality traits considered relevant to decision-making by researchers, as may be noted by the inclusion of these factors as a dimension in most of the investigations of vocational maturity. Murphey, et. al. (1963) focussed upon the development of autonomy in the first year of college and its relationship to relatedness in parent child interactions. The investigation used interviews which began in the senior year of high school and continued at intervals throughout the first year of college. Murphey defined autonomy as "ability to make separate, responsible choices." She sought examples of autonomy in an array of areas: the subject's capacity for responsible decisions about his use of time, choice of college major and occupation, maintenance of scholastic competency, money management, and sexual behavior standards and commitment to a meaningful relationship with a member of the opposite sex. Autonomy, so defined, was expected to be reflected through the subject's "feeling of being a separate person rather than an extension of others, awareness of freedom to make choices in selecting or rejecting outside influences, and assuming responsibility for his own decisions." (p. 645). Relatedness was defined as "satisfaction in a predominantly positive relationship with parents." Using the factors of autonomy (A) and relatedness (R), classed high and low, the subjects were divided into four groups. Results indicate that those subjects who were high in autonomy and relatedness are children of parents who are autonomous and inner-directed, while parents of subjects low on both factors lacked confidence in their children's ability to gain autonomy.

In thinking of autonomy and independence, the question of authority frequently arises. We have noted already Herriott's finding that adolescents lean heavily on significant others in their lives in determining their own aspiration levels. The question of individual freedom and parental control has long been an issue for theorists of adolescent psychology as well as for adolescents and their parents. Related to the authority issue is a recent investigation by Newmann (1965) of adolescents' views of who should decide on controversial public questions. Newmann used value categories to score the reasons presented by his subjects for delegating authority choice. In his study, adolescents indicated that public issues should most often be settled by those with competence (knowledge, intelligence, experience, skill). The second most frequently mentioned value was a legal one involving jurisdictional claims and delegation of power. Efficiency was the third highest value with individual and collective autonomy coming fourth in the rank order. Six other categories were ranked. Tradition, mutual interaction or consultation of several authorities, and religion ranked in the last three value positions.

In a two phase study investigating career decisions of persons completing their formal education and entering their first jobs, Hilton, Baenninger, and Korn (1962) approached the problem of decision-making by analyzing the decision process in progress, strategies utilized by the subjects, and such decision factors as personal values and subjective indecision. The strategies the authors found in this investigation have been presented earlier (Chapter III) in this paper. As was mentioned previously, a dissonance reduction model was used in a complex information processing framework for analysis of their data.

> The investigators focussed on the way in which the students in the sample gained information from the environment, and what information they paid attention to and what they ignored, on how they reacted to information which was inconsistent with what they believed about the world and themselves, and on how they chose among alternative courses of action on the basis of their processing of information about them. (Hilton, 1962, p. 196).

In Phase one, Hilton's major finding was that significant changes occurred in the personal values of his subjects, who were under the press of completing their education and making important career decisions. In this first phase, Hilton devised a scoring system for measuring subjective indecision, "the extent to which a person is undecided about the nature of his future occupational activities." Subjective indecision increased noticeably in the first four of seven interviews as the need to make decisions increased, then decreased in the sixth and seventh interviews, when most of the subjects had made their decisions. Among these subjects, indecision was highest just prior to resolution.

In Hllton's phase two, the sample of graduate students was too small to yield statistically significant findings about their decision processes. However, a trend indicated that master's candidates planning to compete for the Ph.D. should be handled separately from terminal master's candidates in a study of this nature. The findings suggest that master's candidates showed an increase and Ph.D. students, a decrease in the difficulty they experienced in decision-making. Some of the indicators of difficulty, however, showed a reverse trend from the expected. The major contribution from this investigation seems to be the description of strategies involved in the process of decision-making and the observation of value change under decision press. Previously values had been assumed to be relatively stable, unchanging personality aspects and reliable predictors of career decisions; these results appear to contradict this previous finding. In addition, the fact that his phase one subjects were indefinite about their occupational plans even at the end of the academic year (when they had already accepted work positions for the coming year) points toward the real difficulty his subjects experience in making decisions in regard to their careers.

Roe and Baruch's (1964) pilot study of decision-making points again toward the difficulty humans experience in making rational decisions. Roe and Baruch's subjects, recounting their career decisions and occupational histories, seldom mentioned rational decision-making processes. Instead, they leaned heavily on chance, contingencies, and external influences in their lives to explain how their career choices were made. Interviews covered in retrospect decisions that had been made rather than actively investigating actual decisions being made at the time. Further, these subjects who were between the ages of 30 and 50 had recently experienced occupational change and/or retraining. These two facts seem sufficient to cast a doubtful aura over the generalizability of the findings; yet this study remains an interesting and important one because it points toward the possibility that many, if not most, people do not *make* decisions but rather *chance* into them. If this be so, it needs more thorough investigation and consideration before guidance personnel proceed to set up programs for training youngsters in theorists' conceptions of how decisions *should* be made.

In contrast to Roe and Baruch's findings of few decision-making processes among their adult sample reporting career decisions, Silber et. al. (1961) found that the fifteen competent high school seniors they investigated relied heavily on sound coping and decision-making behavior when confronted with the highly specific decision to apply and accept admission to colleges of their choice. Going to college, however, was never a decision for fourteen of these students but an assumption based on their family's and society's expectation.

Field (1964) in his investigation of decision-making discerned five meaningful strategy types of adolescent males, which were presented here in Chapter III. He grouped the decision behavior of his first two strategy types and called it "purposeful." His last three types were grouped in a "triggered" behavior category. Field's "purposeful" subjects consistently differentiated themselves from the "triggered" subjects on academic achievement and aspects of scholastic aptitude. They differed, also, on certain home variables, such as father's educational and occupational level, mother's educational level, the subject's own orderliness, the family's SES level, and the parents expectations for the son's education. Also the Guilford-Zimmerman's unreflective-thoughtful and submissiveness-ascendency scales significantly differentiated the two groups, as did the Kuder mechanical and literary interest scales. Class rank was also significantly correlated to a boy's position in one of the two groups of decision behavior.

Brim, Glass, Lavin, and Goodman (1962) have carried out an exciting study of decision-making, although it utilizes hypothetical decision situations rather than investigating real decisions. From inter- and intra-group analysis of their adult sample's responses, they conclude that "general values and orientation toward life, together with the cultural background of the respondents, seem to account for more variability in decision-making than the more traditional personality traits." (p. 234). Specifically, intelligence and manifest anxiety seemed unrelated to the decision processes of their subjects. Rather, basic differences in social background such as belief in fate, being a lower class female, or being socially concerned about certain issues, influenced decision thinking. An autonomy-dependency personality dimension was found to be related to the evaluation of outcome desirability in five of their six sub-groups. Autonomy was defined as future time orientation, independence of judgment, belief in thinking before acting or a general "perceived personal control." Dependency, on the other hand, was described by a belief in fate and/or supernatural causes, dominance in child rearing attitudes, and general optimism about the outcomes of action. Also, separate analyses for the lower and middle class males produced a significant loading on the time orientation factor for the lower class group but not for the middle class.

In summary, the research findings reviewed here indicate that some work has been done in approaching and understanding the complexities of decision-making.

Vocational maturity investigation among adolescents, particularly boys, appears to be the area most thoroughly covered. From Super we learn that a boy's concern with choice and acceptance of responsibility are important personality dimensions in regard to his readiness to make mature vocational decisions. The boy's use of resources and the specificity of information he has at his disposal to make decisions are relevant to his vocational maturity as are the specificity and extent of his planning. Gribbons and Lohnes found two relevant factors which were different from Super's factors. Gribbons' vocationally mature subjects could accurately evaluate their scholastic ability and present the rationale for these estimates. This writer felt that his results might be a confounding of intellectual potency with vocational maturity. Reichman's occupational information factor seems analogous to Super's specificity of information. His factor, consideration of occupational alternatives and contingencies seems comparable to Super's specificity and extent of planning.

Among personality factors involved in adolescent decision-making, educational and/or occupational aspiration has been investigated. Reichman made the interesting discovery that this factor is negatively correlated with holding after-school jobs, contrary to what had been expected by other researchers. In another study, Herriott's subjects' self-assessment of intellectual and economic performance held significant relationships with educational aspiration.

Other personality variables such as interests, capacity and values have been examined. Cooley found that using gross categories these three variables could predict later vocational choice with the important factor varying with the age group. Value, was the important variable of prediction at the later adolescent stage (high school and college). In contrast to this finding, Hilton indicated that the values in his sample of young adults were in flux and changed as they were confronted with real career decisions. This finding has serious implications for studies of younger adolescents based on values. However, Tyler and Sundberg, found values and interests relatively stable as two of the three major organizing structures among their 14-15 years old sample.

Autonomy, independence, and attitudes toward authority are other elements that have been investigated. Personal responsibility, a close adjunct of these variables was found to be significant by Super. Tyler and Sundberg in their cross-cultural study found that American adolescents lean more heavily on their peer group for their standards from authority structures than on the adult society.

Further, they found that American teen-agers are more like each other than are Dutch adolescents. This finding does not speak directly to autonomy and independence but it does connote some lack of it when American youngsters are compared with their Dutch counterparts. Murphey and others investigated autonomy in late adolescence and concluded that this personality variable is most readily found in youngsters who have autonomous, inner-directed parents, that is, parents who believe in their children's own power to be autonomous. In his study of authority justification, Newmann's subjects' valued competence to make decisions as the first rank priority, then legality, efficiency, and collective autonomy.

Hilton, Field, Tyler and Sundberg have all made empirical listings of strategies utilized by subjects involved in the decision process. Hilton unearthed "subjective indecision" while engaged in deciding and "post-decisional uncertainty" about future plans in his subjects. Roe and Baruch found their subjects attributed their career decisions, in retrospect, to chance and external influence rather than to any active, purposeful decision-making of their own. Silber and others found, however, very definite rational decision-making in their adolescent subjects when confronted with the specific decision of selecting a college.

Brim and his sociological colleagues claim, based on their study, that differences in the decision thinking process are due more to certain differences in social background as opposed to the influence of psychological personality variables.

These studies (as all research studies) have their own particular drawbacks and limitations such as sample size, interviewer bias, questionable construct validities, poor sampling and statistical methods, and so on. These weaknesses will not be discussed individually here. More important in the context of this paper is the fact that some work has been started in this area and our knowledge of decision-making has been expanded, to some degree, by these empirical investigations. Although these contributions are important, there is still neither a coherent theory emerging from them nor many guidelines as to how this partial knowledge can be adequately used to help youngsters learn to cope with decision situations. This, obviously, will take time. We need much more exploration about the sociological and personality influences on decision-making. A considerable amount of investigation is required into the decision-making processes and strategies now being employed, both by adolescents and adults. How can we hope to help people move, grow, and develop, if we do not know where they are? Most of previous investigations with adolescents have centered solely upon educational and/or vocational decisions. Life is larger than these two aspects of it (if I may make a somewhat trite statement in this regard) and decisions must be carried out in the other realms of living. Consequently, these other areas seem to hold fruitful promise for investigation. If the function of education is to aid in the development of the Total Man, then educators must have relevant information about his totality. This writer, obviously, does not buy the assumption that specific training in one area of decision-making (namely, educational-vocational) will automatically carry over to other decision areas of life, such as selection of a marriage partner and child-rearing methods. We need to know how persons make all types of decisions in order to help them learn to increase their choice-possibilities generally.

In conclusion then, this writer feels that while the contributions reviewed herein are relevant and important, they are insufficient to the present need for understanding decision-making, specifically as it is related to adolescence. With more studies in the area of how people can and do make decisions, educational psychologists will be able to propose a more comprehensive theory as a basis for guidance functions. For it is only in the development of new concepts and the refinement of old ones that we can hope to generate the theory, method, and art necessary for helping individuals increase their decision-making prowess and potency in a direction which yields increased satisfaction to them and a greater contribution to society at large.

CHAPTER IV

ADOLESCENCE AND DECISION-MAKING

This chapter will consider certain developmental stage tasks and attributes of adolescence deemed relevant to decision-making.

Adolescence is one of the most written about yet least understood stages of human development. It is considered to be a stage of great flux, upheaval, and growth in which the developing person moves from childhood toward an adult status in the physical, mental, emotional, and social spheres. In his movement toward adult status, the adolescent must make choices and tentatively solidify some general type of life goal or plan. Because the adolescent must make choices and begin to set his psychosocial role (to use Erikson's term), decision-making is an important and relevant adjunct of this stage.

This paper has pointed out previously that facilitation of decision-making has recently been proposed as the basis for guidance and counseling functions with adolescents. While consideration by theoreticians has been given to various models of decision-making, there appears in the literature little attempt to unite it to the developmental stage of adolescence. Yet adolescents are the persons for whom decision-making based guidance programs are being proposed. It is this writer's contention that decision-making should be considered in relation to the developmental stage of adolescence before full-scaled programs are instituted.

Decision-making models are generally based upon the cognitive ability for use of rational thought and logic. This ability involves a capacity for objectification of information with a skill for both differentiating and integrating component parts of thought. It further involves reflective thought and a capacity for thinking abstractly, and into the future. In relating decision-making to adolescence, then, one must first look at the cognitive level of development found in most adolescents.

The adolescent's cognitive level and capacity for logical thinking has been explored by Inhelder and Piaget (1958). After noting that formal thought begins at the approximate age of eleven or twelve, they assert that "The adolescent differs from the child above all in that he thinks beyond the present." (p. 339). They also note that "the adolescent superimposes propositional logic on the logic of classes and relations." (p. 335). That is, the adolescent is capable of constructing abstract theory. In this regard, they continue:

> The adolescent's theory construction shows that he has become capable of reflective thought and that his thought makes it possible for him to escape the concrete present toward the realm of the abstract and possible. (p. 342).

For Inhelder and Piaget cognitive development in general is a movement from egocentrism[1] to decentering. They point out again and again that decentering thought transformations in adolescence, which is a movement from concrete thought toward abstract theories and ideologies, is inextricably bound up in the assumption of adult roles. One can assume then that as the adolescent becomes aware of the need to make choices in adult-like roles, that his mental processes ready themselves for the rational, objective thought needed for decision-making as proposed by theorists.

If Inhelder and Piaget are accurate in their analysis of adolescent logical thinking, then, the adolescents as they become aware of the needs for choice are intellectually ready for decision-making. However, adults' expectations of the degree to which decision-making should be a totally rational process in adolescence, should be governed by additional factors mentioned by Inhelder and Piaget.

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[1] "Egocentrism" as Inhelder and Piaget use it is not a synonym for our usual definition of "selfishness" but instead refers to the tendency to center one's perceptions on one's own ego and thereby lacks elements of fluidity and perspective, as per their translators. (p. 345).

The adolescent is a developing person and in this regard had not fully developed to the state of rational thought which the adult is (or should be) capable of. Inhelder and Piaget note that there are "residues of infantile thinking found throughout adolescence" resulting "from a sort of overflow of concrete level problems onto a more abstract plane." (p. 334). They further find that a form of "cognitive egocentrism" as a "manifestation of the phenomenon of lack of differentiation" (p. 345) exists in adolescence. In this cognitive egocentrism, the adolescent often mixes up subjective and objective facts. This confusion results in an idealistic crisis which our authors see as reconciled only in the return to reality, _via_ social relationships and interaction with reality, which marks the end of adolescence. Thus, the adolescent becomes fully rational in his thought processes as he enters actual adult roles within the society.

In regard to this egocentrism, Inhelder and Piaget remind us that "learning is not a purely additive process and that to pile one new learned piece of behavior or information on top of another is not in itself adequate to structure an objective attitude." (p. 345). An objective attitude is necessary in decision-making. The implication of Inhelder and Piaget's findings, then, is that programs for learning decision-making must confront the learner on levels of decisions which are relevant to his present reality. And further, that projections into far-distant decisions, such as occupational choice, must be treated as quite tentative since the realization of these decisions is not yet impinging upon the adolescent student's life space.

One other comment on the intellectual functioning of the adolescent seems needed before we move into a discussion of his emotional and social aspects connected with decision-making. Anna Freud (1946) has cogently pointed out that intellectualization is one of the two defense mechanisms adolescents most commonly use to cope with the conflicts of this stage. She asserts that this defense "makes little or no difference to his [the adolescent's] behavior," and that "the fact that his understanding of and interest in the structure of society often far exceed those of later years does not assist him in the least to find his true place in social life. . . ." (p. 175). She continues her discussion by saying:

> We must not suppose that an adolescent ponders . . . on the choice of a profession in order to think out the right line of behavior, as an adult might do. . . . He evidently derives gratification from the mere process of thinking, speculating, discussing. His behavior is determined by other factors and is not necessarily influenced by the results of these intellectual gymnastics. (p. 176).

To the extent that rational decision-making is an intellectual process in which it is possible to deny or exclude emotional components, to that extent there is a danger of reinforcing a normal defense mechanism of adolescence which _can_ (though not necessarily _will_) result in a neurotic defense in adulthood. The implication of this aspect for guidance decision programs intent upon training youths for adequate decision-making, this writer believes, is the careful inclusion of "gut-level" feelings as a legitimate and real aspect of a decision situation.

Anna Freud's reference to the defensive nature of intellectualization in adolescence brings us then to a consideration of some of the emotional tasks of adolescence which are relevant to decision-making. Havighurst (1952, 1953) has given the following definition of "developmental task."

> A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks. (p. 2).

He discusses in _Developmental Tasks and Education_ ten tasks involved in the adolescent stage of development. These tasks are listed below.

1. Achieving new and more mature relations with agemates of both sexes.
2. Achieving a masculine or feminine social role.
3. Accepting one's physique and using the body effectively.

4. Achieving emotional independence of parents and other adults.
5. Achieving assurance of economic independence.
6. Selecting and preparing for an occupation.
7. Preparing for marriage and family life.
8. Development of intellectual skills and concepts necessary for civic competence.
9. Desiring and achieving socially responsible behavior.
10. Acquiring a set of values and an ethical system as a guide to behavior.

These ten tasks Havighurst lists can be subsumed under Erikson's (1950, 1959) more general task requirement of identity formation. For Erikson, the central task confronting adolescents is the formation of some sense of identity. Identity, as he uses it, embraces and connotes a "sense of individual identity," "a continuity of personal character," "ego synthesis," and "solidarity with a group's ideals and identity." (1959, p. 102). "Its (an increasing sense of identity) most obvious concomitants," Erikson tells us, "are a feeling of being at home in one's body, a sense of 'knowing where one is going,' and an inner assuredness of anticipated recognition from those who count." (1959, p. 118).

After noting that this task is a "formidable" one, Erikson suggests a new view of the adolescent period:

> The period can be viewed as a psychosocial moratorium during which the individual through free role experimentation may find a niche in some section of his society, a niche which is firmly defined and yet seems to be uniquely made for him. In finding it the young

> adult gains an assured sense of inner continuity and social sameness which will bridge what he was as a child and what he is about to become, and will reconcile his conception of himself and his community's recognition of him. (1959, p. 111).

The very suggestion of a psychosocial moratorium with role experimentation again points toward the necessary tentativeness of most choices and decisions at the adolescent level. Tentativeness is such a relevant part of adolescent decision-making that Ginzberg and others (1951) have used this term to label their major stage of adolescent vocational development. This stage, according to Ginzberg, runs from age 11 through 18 or 19 and "encompasses the whole of adolescence and a little more." (p. 68). The implication of this aspect of adolescent choice for decision based guidance programs is one of carefully helping students learn to make decisions based upon anticipated change in themselves as well as in society. The danger in ignoring tentativeness of identity and choice as a powerful force in adolescence is the creation in youngsters of premature decisions which they can not give up or which can be changed later only at a loss. Premature decisions can begin to limit the total development of an adolescent and lead to a rigidity of approach to life, which Field (1964) notes in his first group of subjects.

The preceding paragraph does not mean to imply that adolescents should not make decisions regarding their future.

No decisions in re the future would lead to "role diffusion," Erikson's negative polarity of "identity." As he notes, "It is primarily the inability to settle on an occupational identity which disturbs young people." (Erikson, 1950, p. 228). The point is that guidance practitioners assisting adolescents in decision-making should help adolescents realize that while they are making decisions and setting goals toward which they can move purposively, they should also be aware of the tentativeness of these decisions and open to change in the light of new information about themselves and society. There is a polarity between too firm and too fixed an identity based upon premature final decisions which can mitigate against continued growth and development and role diffusion based on the reluctance or refusal to make any decisions.

Similarly, there is a polarity of dependence-independence in adolescent decision-making. Current models of decision-making appear to be based on the assumption of total personal independence, freedom, responsibility, and autonomy of adult decision-makers. Our adolescent is developing these characteristics--and doing a fine job of it when one takes into account the necessary struggle with entrenched authority figures such as parents and teachers--but he is not "there" yet. He is generally still living at home under his parents' roof. Consequently, and by the very virtue of his adolescent student status, he is not yet economically free or independent of his parents. Neither is he regarded as "responsible" by society's jurisdictional and legislative branches. One stage task of adolescence is the necessary emotional individuation of himself from his parents. He must become independent of them emotionally as necessary groundwork for building his own unique identity and future economic independence. But, he vacillates between independence from them and continued dependence on them emotionally and economically as both Blos (1962) and Anna Freud (1946) have pointed out.

The issue of dependency versus independence has its implication for decision training. As noted above, decision models assume and expect independence in decision-making and autonomy in setting decisions into action. In general, research has evaluated independence in decision-making by adolescents as a strong plus toward vocational decision maturity. In this regard, the less an adolescent views his decision as connected with his parents desires for him, the more independent he is rated by investigators. However, because he is still developing his independence there remains the danger of too much too soon. As Ginzberg (1951, p. 65) noted, "Although reliance upon parents (in making an occupational choice) might be considered a sign of dependence, in perspective it may be an important step forward." Indeed, McArthur (1966) has found that some of the most successful [vocationally] subjects in his studies had pursued careers set out for them by their parents.[1]

The point at issue, again, is the degree to which guidance practitioners expect an adolescent to be independent and autonomous. Too much in either direction can be hazardous in learning to make decisions. Pushing an adolescent to independence before he is emotionally and cognitively ready for it (or before his parents are ready to grant it to him, for that matter) can lead to confusion and insecurity. On the other hand, letting or encouraging the adolescent to remain dependent long past the time when his peers have or are establishing their own independence, has its own negative connotation for the adult he is becoming. Obviously a balance is needed between the two and guidance practitioners should be aware of the dangers at both extremes.

Another important task of adolescence which White (in Rosenblith and Allensmith, 1962, pp. 213-221) points toward is a developing sense of competence. Competence, as White envisions it, is a relevant task at each stage of human development. At adolescence, competence is particularly concerned with a "sense of industry and with social competence." (p. 220). In regard to this stage task, decision-making training can be especially meaningful for the growing person. The ability to make decisions that are deemed personally valuable ones and which seem to be accepted by the society at large can greatly foster a developing sense of competence in interpersonal and social roles. Adequate training in decision-making, which in some sense is training in competence, can make a person more secure in approaching and handling his life experiences and situations and thereby foster adaptive activity, manipulation, and exploration in the individual.

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[1] He further suggests that career choice can be predicted using the subject's social class, his dominant parent, and his positive, or negative reaction to his family.

In summary, this section has dealt with the cognigive development and certain stage tasks of adolescents in relation to the development of a decision-making capacity. A review of adolescent cognitive development indicates that an adolescent is ready to start making and learning how to make decisions as long as certain limiting features are held in mind. In addition, many of the stage tasks call for and will be enhanced by a growing competence in decision-making. A balance between expecting too much, too soon and too little, too late is called for in setting up programs for decision training.

CHAPTER V

CONCLUSION

This paper has reviewed current models of decision-making and some related research in connection with certain stage tasks of adolescents. Along the way, we have pointed out some implications for guidance practitioners and guidance programs based on decision-making. A paper of this sort brings its writer to some hypotheses and biases of her own (which, no doubt, have shown up previously in the context of this paper).

This writer has worked with both "normal" and "disturbed" adolescents as a guidance counselor in a school setting and as a psychologist in a clinic setting. This experience has been short in relation to most "professionals." But, it has been long enough to develop a profound appreciation and respect for the many ways the adolescent confronts the myriad tasks and decisions of growing up. My observation is that individual youngsters use numerous and varied approaches to making decisions which seem pleasing to them and should be acceptable to society. In doing so they indicate that there are many paths to the resolution of adolescent crises and choice points. But even this observation is not new. Blos (1962, p. 4) has said before me that ". . . there are many ways of completing the adolescent process successfully."

Decision-making is inevitably involved in the resolution of the adolescent process; for it is only as choices are made and carried out that the emerging adult begins to answer the questions of "Who and What am I?" It is through good (personally valuable and society relevant) decision-making that an adolescent forms some identity of his own unique individuality and gains some sense of competence in dealing with his life situations.

In this regard, I view decision-making training as a valuable contribution educational institutions can make to adolescents. To institutionalize programs for decision-making requires knowledge of how various types of people do and can make decisions. This area of knowledge is a relatively unexplored one. Current models of decision-making seem to be predominantly based on arm-chair philosophizing and theorists' expectations of how people should make decisions. It is not that their theorizing is "bad" but simply that most of it has no empirical roots, that troubles me. And arm-chair theorizing without empirical grounding would not bother me were it not for the fact that programs for training adolescents in decision-making based on these models are currently being instituted in school systems.

My private professional reservation about the institutionalization of these models is the values they expound, often to the exclusion of equally valuable values. For example, the rational models of decision-making value rational thought and the scientific method as a "good" solution for a man confronting a decision situation which affects his total life development. However, human life situations and decisions are not physical experiments in a scientific laboratory. These life situations involve very real and dynamic emotional, frequently non-rational, components of existence not present as a property in the purely physical world. Emotions in relation to one's self and one's choices are difficult elements to objectify and subject to scientific scrutiny. Indeed, this may be a near-impossible feat for a large portion of our American population for various reasons, such as, intelligence level, socio-economic and cultural background values, and defensive mechanisms. While most rational decision model theorists give lip service to including emotional components in the material to be looked at rationally, they have yet to present comprehensive plans as to how these "gut-level" components will be brought to the decider's attention so that they can rationally affect his decision.

Another type of program proposes the utility theory and prediction as a value underlying decision-making. This model values accurate prediction and successful outcomes. Success and maximum-gain or minimum-loss are long-standing, widely held American values. Yet freedom is the basis of our American society. Implicit in freedom is the right to succeed or the right to fail--based on one's own understanding and choice. A system which proposes and teaches that the "best" choice is the most accurate prediction of success is too narrow to encompass our American value heritage. The other decision models can be criticized equally for failing to adequately note man's capacity for rational thought or his desire and will to become something beyond that to which he is born.

In short, the existing models of decision-making seem individually too narrow and too confined to offer legitimate bases for teaching decision-making to adolescents. They concern themselves too much with content aspects of decisions (such as information) and too little with different means or processes of getting there, i.e., making decisions. Usually they present only one route to travel in deciding, when the very existence of so many models indicates that there is more than one process open on the complicated road map to good decisions.

Consideration of the many existing process models of decision-making and the narrowness of each when considered individually leads me to a single conclusion regarding decision-based guidance programs. Because we have not as yet any model which incorporates several strategies or possible processes for dealing with the emotional and objective components of decisions, guidance practitioners should think twice before basing their services and functions on one single model. While it may produce better decisions or decision-making (as evaluated within the framework and values of that single model), it may limit the possibility of multivalent approaches to different kinds of decision-making. Until such time as some theorist or theorists work out a model including several strategies for approaching decision tasks based on empirical evidence, guidance would be better off, it seems to me, to synthesize existing models.

In the meantime, much more needs to be discovered about the components of decisions and processes or strategies which can be involved in making good decisions. These investigations, based on what we do know about human behavior, need to be carried out on different socioeconomic strata involving both sexes. Several different life stages need to be studied. For guidance's purposes, more information about adolescent decision-process and decision-strategy seems crucial to avoid using adult models for adolescent decisions. Nevertheless, information regarding adult decision-making is necessary for we are helping adolescents develop toward an adult status. Also, further research is needed on the early determinants of decision process such as attitudes toward parents and environment which can effect stances on decision-making.

In addition, it seems important to study how the interaction of different life experiences affect and effect decision components and decision process. In this last regard, Goethals (undated) is in the process of proposing a theory of adolescence which would facilitate comparative research on teenagers from three types of American backgrounds. In a synthesis of anthropological, sociological, and psycho-analytic constructs, he proposes a theory of adolescence involving nine variables[1] which seems to hold promise for analysis of how differing decision strategies and decision factors among adolescents come into existence.

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[1] Goethals' nine variables are: "the attitudes of the parents toward the child," "the general mode of adolescent experience," "the agent of adolescent experience or introduction to adult life," "the mode of relationship," "the task emphasis," "the mode of experience," "the significant other person," "the fixation level," and "the content of the moratorium."

Until such time when we have more formalized analysis of adolescent decision strategies, what does our experience with students teach us about how they make decisions. While Hilton's strategies listed in Chapter II are an adequate statement of presently-known decision strategies, a more vividly descriptive set emerged in a recent research seminar.[1] Most guidance counselors are familiar with the Leaping Lena decider who makes decisions on the spur-of-the-moment impulse. Then there's Agnes Agonizer, the totally cognitive chick who thinks so much about the pros and cons that she never quite makes a decision. Next comes Maurie Moratorium, the delayer who wants to avoid any decision and postpones it at all costs by claiming, "I'll do it later." Then there's Freddie Fater, the gambler who says, "It's all in the cards so why should I bother." Next we see Penelope Planner, our "perfect" decision-maker who is able to approach decisions rationally and yet achieves a balance between the cognitive and affective factors involved. And Hermann Hypnotizee--he gladly surrenders his decision powers to the Hypnotists, those who Know what he should decide, be they parents, peers, or professional educators. And lastly, Inez Inner Harmony who is not quite sure how she makes the decision but it somehow feels "right" for her. Obviously these "types" and others need much more investigation as to what goes on on the cognitive and affective levels when they use these approaches.

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[1] I am indebted to Dr. Norman Sprinthall for the first five categories which he gave at a seminar on November 15, 1965. I have added the first names to his categories and the last two categories.

And, until such time when further study opens new realms, our experience teaches us some of the characteristics of adolescent students' decision-making. It is a continuous, continuing process even though some decisions are required now which can be changed later only at great emotional, time, or financial costs to the decider. It is tentative, as the adult is still developing. It frequently is based on more psychological elements than logical ones. It is further known that the student needs information--objective information about the world and situation out there and his own attributes, qualities, and talents, as well as some awareness of his emotional response to the various alternatives presenting themselves in the unique decision situation.

The clearest need remains however for more empirical investigations on which to revise old theories or construct new ones.

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ABSTRACT:

In the context of decision-making as a basic framework for guidance, this paper discusses models of decision-making and some of the relevant psycholog cal experiments. It considers decision-making in reference to developmental tas of adolescents. In models of decision-making most attention is given to phases c the decision process, outcome probabilitities and structual components, decision strategies, needs, drives and traits of the decider, and the social context. Dynamic decision research has concentrated upon vocational maturity and developme tal readiness in relation to career development, dynamic decision processes, personality factors and types of deciders. Decision-making is seen as an important adjunct of adolescence since adolescents are called upon to make choices and begi to set their psychosocial roles. Cognitive development, competence, and the grow of independence are seen as important here. Adequate training in decision-making may help one become more secure in handling life experiences.

The writer suggests that investigations on how adults and adolescents actually make decisions are necessary before programs can be devised to instruct adolescen on how they can or should make decisions. More research is needed since existing theories seem to be an inadequate basis on which to build programs.